CLAIMS

I claim:

1. A laser system for destroying bacteria in a bacterial locale, said system comprising:

(a) a housing and a control;

(b) a laser oscillator sub-system within said housing for causing the selective emission under said control of first radiation in a first wavelength range of 865 nm to 875 nm, and the selective emission under said control of second radiation at a second wavelength range of 925 nm to 935 nm;

(c) an optical channel for transmission of said first radiation and said second radiation from said laser oscillator sub-system; and

(d) a head for enabling delivery of said first radiation and said second radiation from said laser oscillator sub-system through said optical channel to the site of said bacterial locale;

(e) said first radiation and said second radiation being adapted to activate a chromophore from said bacterial locale and being adapted to cooperate with said chromophore to destroy bacteria in said bacterial locale.

2. The laser system of claim 1 wherein said transmission is simultaneous.

3. The laser system of claim 1 wherein said transmission is alternate.

4. The laser system of claim 1 wherein said transmission is multiplexed.

5. The laser system of claim 1 wherein said head includes an optical egress for said first radiation and said second radiation, and a scaling instrument.

6. The laser system of claim 1 wherein said head includes an optical egress having a frosted tip.

7. The laser system of claim 1 wherein said head includes an optical egress and an otoscope.

8. The laser system of claim 1 wherein said head includes a digit clip and an optical egress therefrom.

9. The laser system of claim 1 wherein said head includes a stocking having an optical ingress from said laser oscillator and an optical egress to the inner surface of said stocking.

10. The laser system of claim 1 wherein said head includes a handle and an optical egress extending therefrom.

11. A laser system for destroying bacteria in a bacterial locale, said system comprising:

(a) a housing and a control;

(b) a laser oscillator sub-system within said housing for causing the selective emission under said control of first radiation narrowly at a first wavelength of substantially 870 nm and the selective emission under said

control of second radiation at a second wavelength of substantially 930 nm;

(c) a head for delivering said first radiation and said second radiation from said laser oscillator sub-system to the site of said bacterial locale; and

(d) said first radiation and said second radiation being adapted to activate a chromophore from said bacterial locale and being adapted to cooperate with said chromophore to destroy bacteria in said bacterial locale.

12. The laser system of claim 11 wherein said transmission is simultaneous.

13. The laser system of claim 11 wherein said transmission is alternate.

14. The laser system of claim 11 wherein said transmission is multiplexed.

15. The laser system of claim 11 wherein said head includes an optical egress for said first radiation and said second radiation, and a scaling instrument.

16. The laser system of claim 11 wherein said head includes an optical egress having a frosted tip for insertion into a root canal.

17. The laser system of claim 11 wherein said head includes an optical egress and an otoscope.

18. The laser system of claim 11 wherein said head includes a digit clip and an optical egress therefrom.

19. The laser system of claim 11 wherein said head includes a stocking having an optical ingress from said laser oscillator and an optical egress to the inner surface of said stocking.

20. The laser system of claim 11 wherein said head includes a handle and an optical egress extending therefrom.

21. A process for destroying bacteria in a bacterial locale, said process comprising:

(a) energizing a laser to cause the selective emission of first radiation in a first wavelength range of 865 nm to 875 nm and the selective emission of second radiation at a second wavelength range of 925 nm to 935 nm;

(b) establishing a path for the transmission of said first radiation and said second radiation from said laser oscillator sub-system; and

(c) enabling delivery of said first radiation and said second radiation from said laser oscillator sub-system through said optical channel to the site of said bacterial locale;

(d) said first radiation and said second radiation activating a chromophore from said bacterial locale and cooperating with said chromophore to destroy bacteria in said bacterial locale.

22. A process for destroying bacteria in a bacterial locale, said process comprising:

(a) energizing a laser to cause the selective emission of first radiation in the selected wavelength of 870nm and the selective emission of second radiation in the selective wavelength range of 930nm;

(b) establishing a path for the transmission of said first radiation and said second radiation from said laser oscillator sub-system; and

(c) enabling delivery of said first radiation and said second radiation from said laser oscillator sub-system through said optical channel to the site of said bacterial locale;

(d) said first radiation and said second radiation activating a chromophore from said bacterial locale and cooperating with said chromophore to cause a reaction with bacteria in said bacterial locale.

23. The process of claim 22 wherein said bacteria is E. coli.

24. The process of claim 22 wherein said reaction is a toxic singlet oxygen reaction.

25. A laser process comprising destroying bacteria in an infected locale by a reaction resulting from application to said infected locale of laser radiation, which is primarily of two wavelength ranges that are generated by a laser system:

(a) said bacteria including E. coli;

(b) said system comprising:

(1) a housing and a control;

(2) a laser oscillator sub-system within said housing for causing the selective emission under said control of first radiation that is primarily in a first wavelength range of 865 nm to 875 nm, and the selective emission under said control of second radiation at a second wavelength range that is primarily in a wavelength range of 925 nm to 935 nm;

(3) an optical channel for transmission of said first radiation and said second radiation from said laser oscillator sub-system; and

(4) a head for enabling delivery of said first radiation and said second radiation from said laser oscillator sub-system through said optical channel to the site of said bacterial locale;

(5) said first radiation and said second radiation activating a chromophore from said bacterial locale and cooperating with said chromophore to destroy said bacteria in said bacterial locale.

26. A laser process comprising destroying bacteria in an infected locale by a reaction resulting from application to said infected locale of laser radiation, which is primarily of two wavelength ranges that are generated by a laser system, said system comprising:

(a) a housing and a control;

(b) a laser oscillator sub-system within said housing for causing the selective emission under said control of first radiation that is primarily in a first wavelength range of 865 nm to 875 nm, and the selective emission under said control of second radiation at a second wavelength range that is primarily in a wavelength range of 925 nm to 935 nm;

(c) an optical channel for transmission of said first radiation and said second radiation from said laser oscillator sub-system; and

(d) a head for enabling delivery of said first radiation and said second radiation from said laser oscillator sub-system through said optical channel to the site of said bacterial locale;

(e) said first radiation and said second radiation activating a chromophore from said bacterial locale and cooperating with said chromophore to destroy said bacteria in said bacterial locale;

(f) said reaction being a toxic singlet oxygen reaction.

27. A dental process comprising scaling an infected locale and destroying bacteria in said infected locale by a reaction resulting from application to said infected locale of laser radiation, which is primarily of two wavelength

ranges that are generated by a laser system, said system comprising:

(a) a housing and a control, said system comprising a head that includes a dental scaler and an optical egress in close proximity;

(b) a laser oscillator sub-system within said housing for causing the selective emission under said control of first radiation that is primarily in a first wavelength range of 865 nm to 875 nm, and the selective emission under said control of second radiation at a second wavelength range that is primarily in a wavelength range of 925 nm to 935 nm;

(c) an optical channel for transmission of said first radiation and said second radiation from said laser oscillator sub-system;

(d) said head enabling delivery of said first radiation and said second radiation from said laser oscillator sub-system through said optical channel to the site of said bacterial locale;

(e) said first radiation and said second radiation activating a chromophore from said bacterial locale and cooperating with said chromophore to destroy said bacteria in said bacterial locale; and

(f) said reaction being a toxic singlet oxygen reaction.

28. A dental process comprising:

(a) inserting a mechanical probe into an infected root canal to expose said root canal;

(b) removing said mechanical probe from said infected root canal;

(c) inserting an optical probe into said infected root canal to cause a reaction in bacteria in said infected root canal by transmission of laser radiation from said optical probe to bacteria in said infected root canal;

(d) said laser radiation consisting essentially of one or both of a first radiation and a second radiation, said first radiation being primarily in a first wavelength range of 865 nm to 875 nm, and said second radiation being primarily in a second wavelength range of 925 nm to 935 nm;

(e) said first radiation and/or said second radiation activating a chromophore in said bacterial locale and cooperating with said chromophore to destroy said bacteria;

(f) said reaction being a toxic singlet oxygen reaction;

(g) removing said optical probe from said root canal; and

(h) filling said root canal with a dental prosthesis.

29. The process of claim 28 wherein said bacteria is E. coli.

30. A therapeutic process comprising:

(a) inserting a diseased digital member into a clip having a pair of opposed elements;

(b) said opposed elements having optical egresses in communication with opposed sections of said digital member;

(c) causing a reaction in bacteria in said diseased digital member by transmission of laser radiation from said optical egresses to said bacteria;

(d) said laser radiation consisting essentially of one or both of a first radiation and a second radiation, said first radiation being primarily in a first wavelength range of 865 nm to 875 nm, and said second radiation being primarily in a second wavelength range of 925 nm to 935 nm;

(e) said first radiation and/or said second radiation activating a chromophore in said bacteria and cooperating with said chromophore to destroy said bacteria;

(f) said reaction being a toxic singlet oxygen reaction.

31. The process of claim 30 wherein said bacteria is E. coli.

32. A therapeutic process comprising:

(a) inserting an otoscope into an infected ear canal;

(b) said otoscope having an optical egress in communication with said ear canal;

(c) causing a reaction in bacteria in said infected ear canal by transmission of laser radiation from said optical egress to said bacteria;

(d) said laser radiation consisting essentially of one or both of a first radiation and a second radiation, said first radiation being primarily in a first wavelength range of 865 nm to 875 nm, and said second radiation being primarily in a second wavelength range of 925 nm to 935 nm;

(e) said first radiation and/or said second radiation activating a chromophore in said bacteria and cooperating with said chromophore to destroy said bacteria;

(f) said reaction being a toxic singlet oxygen reaction.

33. A therapeutic process comprising:

(a) subjecting a diseased anatomical local to laser radiation;

(b) causing a reaction in bacteria in said diseased locale by transmission of laser radiation to said bacteria;

(c) said laser radiation consisting essentially of one or both of a first radiation and a second radiation, said first radiation being primarily in a first wavelength range of 865 nm to 875 nm, and said second radiation being primarily in a second wavelength range of 925 nm to 935 nm;

(d) said first radiation and/or said second radiation activating a chromophore in said bacteria and cooperating with said chromophore to destroy said bacteria;

(e) said reaction being a toxic singlet oxygen reaction.